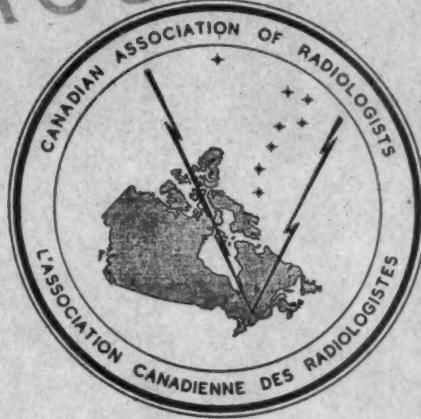


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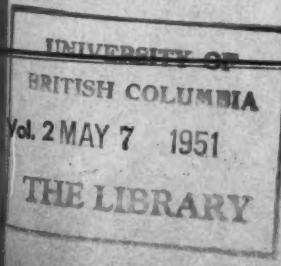
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MARCH 1951

No. 1

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## EDITORIAL

All readers of this Journal will undoubtedly study with considerable interest Dr. Norman McCormick's article appearing in the present issue, entitled: "Some further observations on Cancer Mortality Trends." This paper represents a direct answer to one published in the Canadian Journal of Public Health in June, 1950, by N. E. McKinnon, M.B., of the Department of Epidemiology and Biometrics, School of Hygiene, University of Toronto.

One cannot reach McKinnon's conclusions as to "the failure to reduce cancer mortality", merely on the basis that the cancer mortality rate has remained practically at the same level for the last 25 years, unless he can establish at the same time that the rate of prevalence and incidence of cancer has remained the same during the corresponding period. Such conclusion can only be reached if the statistician can demonstrate that, in spite of the fact that the average age of the population at death has increased during the last 25 years, the number of people dying of cancer has not been augmented proportionately.

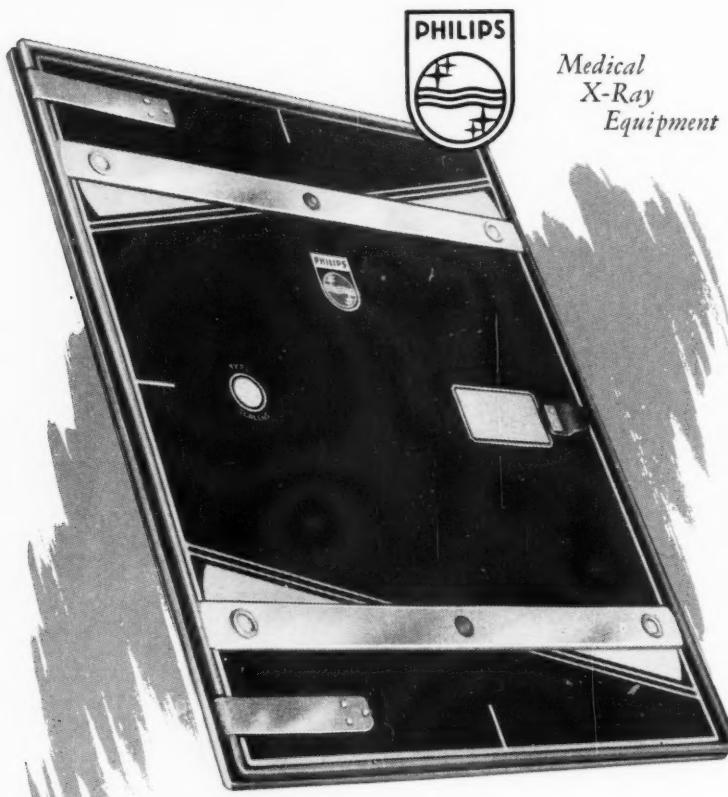
Pure statistical studies based on the mortality rate from cancer over a given period of time are not necessarily a direct reflection of what is being accomplished in the field of diagnosis or treatment of cancer during that period. They are no indication of the proportion of patients who had had an early diagnosis of their disease but who died of cancer during the given year. The same statistical studies do not afford any analysis as to the percentage of cancer cases which were not treated at all, or from a palliative standpoint only.

The value of treatment cannot be assessed by the mortality rates alone. Such rates certainly give no idea of the benefit afforded the patient in the form of relief of symptoms, of a sense of well-being nor of increase in useful survival.

All those who are responsible for the care of cancer patients are fully aware of the "present limitations of diagnosis as well as of treatment" of the disease. It is fully realized also that as long as the causes of the various types of cancer are not known, and satisfactory tests which will permit early diagnosis, especially of the inaccessible forms of cancer, are not available, the problem will remain a difficult one to tackle and conquer.

In the meantime, there remains a task to be done in taking care of the cancer patients. That assignment will certainly be greatly facilitated by continuing to make every effort possible to arrive at the early diagnosis and treatment, before local extension and distant metastases occur. McKinnon's statement that "getting cancer early does not effectually control mortality" is not based on the proven premise that the incidence of cancer has remained the same for the same mortality rate; it makes no allowance for the beneficial results of treatment for the patients, even if a cure is not always obtained in the highest percentage desired; and it appears to be more destructive than constructive, if not erroneous.





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# THE JOURNAL OF THE CANADIAN ASSOCIATION OF RADIOLOGISTS

Volume II

MARCH 1951

Number 1

## SOME FURTHER OBSERVATIONS ON CANCER MORTALITY TRENDS. \*

NORMAN A. McCORMICK, F.A.C.R., F.R.C.S. (EDIN.)  
WINDSOR, ONTARIO

Our current programs for the control of cancer and the efficacy of surgery and radiotherapy in treatment of this disease have been challenged. McKinnon (1) has stated it is,—“a most striking and most significant feature” that the death rate in Ontario for breast cancer and cancer in general has been maintained at “a near level for the past 15 to 20 years in each age group without any suggestion of any continuous decline”. He says that these facts are,—“patently incompatible with the optimistic promises of propaganda and with the glowing claims of cure of many clinics—claims from which propaganda stems, derives its force and is sustained.—They do not support the general concepts of our ability to ‘control’ cancer which have lead to very heavy expenditures of public moneys for that purpose; they are greatly at variance with the general impressions of achievements in that regard in the past two or three decades”: that,—“the provision of equipment, facilities and services for the diagnosis and treatment of cancer in these provinces has not been on any stinted scale but rather the reverse” and that,—“the nature of the neoplasm rather than the time and type of treatment is the important determinant of the final outcome and that metastasizing cancer is, in general, incurable in spite of early treatment.” These are provocative and stimulating statements. If, as we believe, our presently recommended methods of treatment are efficacious, his series of papers emanating from the School of Hygiene of the University of Toronto have already caused a needless sacrifice of many lives. Men, and particularly young men, are coming from this school indoctrinated with a skepticism which has already had its deleterious influence upon the conduct of large numbers of cancer patients. If these diligently disseminated theories are left unchallenged, many years will lapse before the damage is repaired.

We must accept McKinnon’s reiteration that there has been no appreciable reduction in cancer mortality in Ontario. Neither statistical logic nor scientific clinical study justify his

deduction that this is evidence of our inability to influence the fate of the patient with cancer. There are other influences at work. You can do a lot of very funny things with figures. I am told that it is possible to prove that one plus one equals zero. It is faulty reasoning to assume that a steady or increasing cancer mortality rate in Ontario must mean one thing only—failure to know how to “cure” cancer. One does not have to be a statistician to punch holes in this premise.

Unfortunately very little is known about the incidence rate of cancer. Cancer must be made a reportable disease. Unquestionably it has increased in frequency and will continue to do so. Our populace is ageing rapidly. There are in Canada proportionally  $2\frac{1}{2}$  times as many people over 65 years of age to-day as were present 50 years ago and the cancer death rate rises sharply with age. Three per cent of deaths in people under 40 are due to cancer whereas 16 per cent of those over 40 die of this disease. I submit the claim that we have “controlled” cancer in a sufficiently large number of patients to have materially affected the death rate and that this would be obvious were it not for the fact that cancer has become a much more common disease. I believe that the statisticians will agree with even my clinicians’ interpretation of some of their data. In 1919 the death rate from tuberculosis was 125.6 per 100,000 of population; in 1949 it was 15.6 in Ontario. Similarly the rate for pneumonia, bronchitis, and influenza was 235, now it is 49; nephritis has dropped from 88 to 39; appendicitis from 12 to 2.7; typhoid fever from 9.2 to 0.1. In 30 years there has been an annual so-called saving of 400 lives in every 100,000 of our people as the result of the improved medical treatment of only a very few diseases. But life inevitably leads to death. It is impossible for us to save lives. We merely prolong life until the individual dies of some other cause. Many of these people temporarily saved from death have a life expectancy of only a relatively few years; most of them have approached the degenerative age; within the 30 year period of which I speak they will practically all have disappeared. At present it is the custom for one of every six adults to die of cancer. One-sixth of the 400 “saved” annually from other deaths is 66.6. Add this to 80.5—the

\* From the Neoplastic Service, Metropolitan General Hospital, Windsor. Presented at the Fourteenth Mid-Winter Meeting of the Canadian Association of Radiologists, Niagara Falls, January 5, 1951.

cancer mortality rate in 1919 and one gets 147, which compares rather well with 145, which was the crude cancer mortality rate in 1948. The "adjusted cancer death rate" for 1948 corrected for the increasing age of the populace is however 137 and if we similarly adjust our expected rate it becomes 163 (80.5 in 1919 adjusted becomes approximately 97 and add 66) so that it looks as though we may already have succeeded in lowering the actual cancer mortality rate in Ontario.

Errors in diagnosis are still common, even with all our improvements and laboratory aids and there can be no doubt that cancer is being detected with considerably more accuracy than formerly. One cannot, however, place complete confidence in vital statistics. I look over a considerable number of death certificates each year and am familiar with the patients. The recorded causes of death are frequently incorrect. The statistician has no means of correcting these errors: they remain perpetuated in his mortality rates.

I have recently been working upon a study of the cancer mortality for the past 25 years in Windsor. Until recently cancer deaths in Ontario cities have been recorded solely by place of occurrence without consideration of place of residence. With changes in population we have no knowledge more recent than the 1931 census of the composition of the various age groups. There are many factors involved and it is difficult to draw reliable conclusions.

Yesterday and every other working day I experienced an exhilaration and satisfaction in seeing a half dozen of the more than 300 healthy patients whose lives I saved from cancer 5, 10, and 15 years ago. I am referring to patients who had cancer of the breast, bowel, uterus, tongue, larynx, and etc., definitely not those with the more readily curable lip or skin cancers. No matter what the final outcome these people are happy. They and I know only too well what fate did once hold in store for them. They are with their families. They are free from pain. They have gained in weight, general well being, and are living useful normal lives. This is a thrill that cannot be obtained by the statistician. These and similar experiences had all been recorded many times, but McKinnon has chosen to dismiss these reports with the statement and I quote, "Of course, we're curing lots of them; we wouldn't be doing them if we weren't".

Benefit may yet result however from McKinnon's articles, which forcibly bring to our attention the necessity for redoubling our efforts to do a better job. We must take exception to many of his premises. He states that we have failed to cure cancer under most advantageous circumstances. A great many authors, and I myself, four years ago reported what I considered surprisingly high five-year survival rates under,

on the contrary, very adverse circumstances. (1) He says that we have done a good job in educating the public to come early. I submit that we have done a very poor job indeed. He assumes that the patients in Ontario are coming earlier than formerly and in consequence says that the time of treatment is not an "important determinant of the final outcome". Neither assumption is correct. Despite all our talking and the many good results obtained from treatment, public and professional education have fallen down very badly. Time lost by the average patient in seeking treatment for cancer of the rectum in my clinic during the period of 1936-43 was 5.5 months; in 1944-46 it was 9 months and in 1947-49, 12 months. (3) There are many reasons for this poor picture and it is not necessary to elaborate upon these further at present, suffice it to state that we are not seeing these people earlier. The time of treatment is a very "important determinant of the final outcome". The average delay in seeking treatment in my cervix cancer patients in the first stage of disease as reported in 1946 was 5½ months: 82 per cent of these were well 5 years later. The average delay in the stage 4 cases was 16 months and 10% of these lived. The literature abounds with similar unimpeachable reports for many different varieties of cancer.

McKinnon says that it is the nature of the neoplasm and not the type of treatment that matters. Addition of the mediocre x-ray therapy of 1935 to the radium treatment of cancer of the cervix improved the five-year survival rate by 60 to 100% throughout widely scattered clinics. I trust I may be forgiven repeated references to my own clinic, references made merely for convenience, not because the situation is in any way unique. I have recorded that 61% of the operable patients with cancer of the breast upon whom I have had full control of the radiological and surgical treatment were well at 5 years, whereas only 23% lived of those who were first operated upon by another group of our surgeons. We have doubled the five-year survival among our patients with cancer of the fundus by the proper integration of irradiation and surgery. The operative mortality in our clinic for cancer of the rectum has declined from 40 to 3 per cent, despite a rise in the rate of operability from 9 to 84% and with a resultant shift in the 5-year survivals from zero prior to 1935 to 58% of the patients undergoing resection. These are by no means isolated examples or unusual results but they will serve to illustrate my contention that the type of treatment is of vital importance and unfortunately, we have succeeded in doing very little to ensure that even a majority of the cancer patients in Ontario receive adequate treatment.

He says that we have made heavy expenditures of public funds in setting up our clinics, but was unfortunate in his two illustrations.

## JOURNAL OF THE CANADIAN ASSOCIATION OF RADIOLOGISTS

The radon emanation plant in the Physics Building in Toronto is cited as an expensive and supposedly unwarranted expenditure. It seems rather surprising in these days of delirious governmental spending to ridicule the expenditure of less than \$5,000.00, 17 years ago, to build this piece of equipment which has been instrumental in preventing many cancer deaths. The small quantity of radium in the plant is intact and its cost could be recovered at any time. One of the Ontario clinics is credited with having been supplied with a radio-active "cobalt bomb" last year. This regrettably is not true. I would urge that every effort be made to have this bomb installed as soon as possible. Even had the statement been correct, a bomb supposedly installed in 1950, could hardly have affected the 1947 Ontario cancer mortality figure.

The reportedly magnanimous manner in which Ontario has been supplied with (I quote) "equipment, facilities, and services for the diagnosis and treatment of cancer" at "very heavy expenditures of public moneys" (unquote) requires a moment's consideration. In 1949 The Ontario Cancer Treatment and Research Foundation spent \$155,884. for equipment and to aid the official cancer diagnostic and treatment centres in Ontario. With 4,189,000 people in Ontario that means that we saw fit to spend THREE cents to aid in satisfying each of you individually that you did not have cancer, or should you have been one of the unfortunate, to ensure that you had adequate treatment: in other words, our leaders extracted from me and returned for the use of cancer in my family in 1949 the amazing sum of NINE cents. In contrast, I have just paid \$120 as the yearly premium on the insurance of my car. For each dollar of public funds invested in the treatment of cancer in Ontario last year the Federal Government has spent \$3.66 on the rehabilitation of a home for the Prime Minister.

Is McKinnon justified in condemning radiotherapy as a failure on his asserted assumption that it has not affected the cancer death rate in Ontario when only 36% of the Ontario cancer patients were treated by the radiotherapeutic centres in 1948? No one has ever claimed that these clinics should treat all cancer. It is amply proven that they have done a very good job indeed both in attracting patients suitable for treatment and in the results obtained. But this is only a part of the picture.

Results in a few Clinics in Ontario show what can be accomplished by the proper integration with surgery and I submit that were the surgical management of cancer in Ontario put upon as sound a basis as is radiotherapy the results would be very different indeed. My own clinic endeavours to provide a complete and all

inclusive service. I have never advocated radiotherapeutic centres *per se*. We must see to it that our centres are in every sense true cancer centres giving the very best and most complete diagnostic and treatment service and utilizing every available means to this end.

Certainly none of us has had much help to date. Fifteen years ago the Provincial Department of Health loaned my Clinic 250 mgm. of radium valued at \$8,500. and gave us their blessing. The Department has given us over the period of years approximately 3,000 mc. of radon at an expense to itself of \$600. Subsequently the Ontario Cancer Treatment and Research Foundation provided us with another \$3,000. worth of radium. All of that radium is intact and has cost the taxpayers only the interest on their investment. After five years for the first time the Department of Health gave us an annual grant to aid in treatment of the needy. Five years later the Foundation augmented this grant so that we have received public funds during 10 of the 15 years' history of our clinic totalling \$75,000.—just exactly  $\frac{1}{8}$  of the cost of a single anti-aircraft gun or if you prefer, the cost of keeping two sailors in the Canadian Navy for a similar period of time. Contrast this to the million and more dollars of public funds expended in our city for the treatment of tuberculosis including the building of a large, elaborate and costly hospital.

Just what have we done in Windsor to justify this so-called unstinted aid? We have treated more than 3,800 patients with cancer under most adverse circumstances. We ourselves provided one of the most completely equipped and most commodious clinics in proportion to our volume of work of any clinic in Ontario and yet we are working in basement quarters less commodious and less adequately equipped than my own private office. We have given of our services, without cost to anyone, work to the poor and needy totalling in excess of \$360,000. The patient economically more fortunately situated, has been treated at most reasonable charges. We have had the co-operation of the medical profession. We have tried to influence the calibre of their work with cancer and with much success, but even to-day a large proportion of our patients arrive only after ill conceived and most unfortunate treatment. The absolute five-year survival among all patients seen with cancer, other than in skin, is 26.2 per cent. While in numbers the population of Windsor has remained practically unchanged since 1945, figures supplied by the local Board of Health indicate recent substantial declines in the cancer mortality rates. Support for the last statement is provided by the Statistical Department of the Metropolitan Life Insurance Company in New York which finds that the death rate from cancer in women has declined by 13 per cent in the last decade despite more accurate diagnoses.

Excluding those with skin cancer, 49 per cent of our patients were treated for cure. Despite the fact that many of these were suffering from advanced stages of the disease there was some slight hope that the growth might be eradicated and these people received at least the minimal treatment which might reasonably be expected to cure a cancer of the particular type from which they suffered. All patients, for example, who received the full recommended course of x-ray and radium treatment for carcinomá of the cervix, those who had a radical mastectomy or a resection of the stomach or bowel are considered as having been treated for cure, even though one knew perfectly well that in many instances cure was practically an impossibility. There is a net 58 per cent five-year survival in this group. Unreasonable delay on the part of the patient in seeking treatment is largely responsible for the failures.

Fifty-one per cent of our patients arrived in stages of disease completely impossible to cure. In no instance did any of these receive a known cancericidal dose of irradiation or undergo surgical excision. We cannot assume responsibility for failure to cure this group; neither could we refuse them the benefit of the palliative forms of treatment which brought comfort and aid to many. Unsuccessful treatment elsewhere with recurrence of the growth accounted for 25 per cent of the patients treated palliatively. Twenty-five per cent of cancer arises in sites admittedly difficult to recognize early or treat successfully. Failure to-day to cure 75 per cent of primary cancer, for at least five years, is not due to lack of knowledge or ability but is entirely the result of an unreasonable unwillingness on the part of the patient, activated largely by physical fear, not expense, to respond to well-known and alarming symptoms.

## SUMMARY

- (1) Many people have been cured of cancer.
- (2) Our present knowledge is such that most patients are curable in the early stages of their disease.
- (3) Lack of a significant reduction in general cancer mortality rates does not disprove these established facts.
- (4) Unwarranted procrastination is largely responsible for the incurable condition in which many arrive.
- (5) Renewed efforts must be made to educate our patients to the necessity for early diagnosis and thorough treatment.
- (6) Public expenditures for the control of cancer have been pitifully and ridiculously small by any standard of comparison.

(7) Free cancer treatment or state medicine will not enhance the calibre of our work; on the contrary they tend to discourage the best men from entering this field of endeavour. Rapidly expanding prepaid medical plans adequately care for a large part of the populace.

Let the Provincial Governments augment their grants to provide more facilities and aid in the treatment of indigents. Let us build now, adequate and complete cancer centres—centres of which we may truthfully say—there are none better.

1—De nombreuses personnes ont été guéries du cancer.

2—Nous savons actuellement, que la plupart des patients sont curables dans les débuts de leur maladie.

3—Le manque de réduction significative des taux de mortalité du cancer en général, ne contredit pas les faits ci-dessus.

4—Une temporisation injustifiable est largement responsable de l'état d'incurabilité, dans lequel plusieurs patients viennent consulter.

5—Nous devons faire des efforts renouvelés pour éduquer nos patients sur la nécessité du diagnostic précoce et du traitement complet.

6—Les dépenses publiques pour le contrôle du cancer ont été ridiculement minimes, considérées en elles-mêmes ou comparées à d'autres dépenses.

7—Le traitement gratuit du cancer ou la médecine établie ne rehausseront pas l'envergure de notre travail; au contraire, ils tendent à décourager les meilleurs hommes de s'engager dans ce champ d'action. Des plans de soins médicaux payés d'avance, dont l'expansion est rapide, s'occupent d'une grande partie du peuple.

Que les Gouvernements Provinciaux augmentent leurs octrois pour fournir plus de facilités et d'aide, au traitement des indigents. Construisons maintenant des centres anticancéreux, adéquats et complets, centres dont nous pourrons dire véritablement qu'il n'y en a pas de meilleurs.

1. McKinnon, N.E.: Cancer Mortality Trends in Different Countries; *Canad. J. Pub. Health*, 1950, 41: 230.

2. McCormick, N.A.: The Prognosis in Cancer; *Canad. M. A. J.*, 1946, 55: 460.

3. McCormick, N. A.: The Diagnosis of Early Cancer of the Large Bowel and Rectum; *Canad. M. A. J.*, (In Press). 1687 Wyandotte St. East.

## ENDOMETRIOSIS OF THE RECTO-SIGMOID

DR. GORDON J. CULVER AND DR. MILTON V. CALDWELL  
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An endometrioma is a tumor containing aberrant endometrium, or tissue resembling endometrium, which responds to some of the hormonal stimuli which affect normal endometrium. A combination of these endometriomas constitutes a progressive disease referred to as endometriosis. Other terms applied to this condition are adenomyoma, adenomyosis, and "peritonitis adenoïdes."

This entity occurs frequently enough to justify its inclusion among the more important benign lesions of the rectum and sigmoid. From many publications it can be said that endometriosis involving the pelvic structures occurs in approximately 15% of all women during their active menstrual life, and that about 25% of all women with pelvic endometriosis have lesions of the recto-sigmoid. Of course all of the latter recto-sigmoid lesions are not obstructing, but roughly 45-50% of them present symptoms indicating some degree of obstruction.

Although endometriosis does occur as early as 16 years and as late as 67, approximately 75% of the reported cases occur between 30 and 50 years of age, with 50% between 30 and 40 years.

There is a high incidence of sterility associated with endometriosis, the percentage in the literature varying from 35% to 60%. In the series reported by Keene and Kimbrough there was absolute sterility in 41%, and in the remaining patients an average of 9 years had elapsed since the last pregnancy. Common symptoms of endometriosis of the sigmoid are:

1. Dyspareunia.
2. Menorrhagia and metrorrhagia.
3. Pain in the rectum caused by passage of stool. Pain usually present only at menses, or at least intensified at that time.
4. Recurrent diarrhoea coincident with menstrual period without rectal bleeding.
5. Symptoms of low grade obstruction such as nausea, crampy pains and constipation, just before and during menstrual period.
6. Unexplained sterility.
7. Extension of menstrual backache to the thigh, and often lower leg.

8. A history of acquired dysmenorrhea appearing in a multipara, or a change in type of pain of the functional dysmenorrhea of the multipara.
9. Fairly good general health without weight loss.

Endometriosis of the recto-sigmoid may have a few significant manifestations, depending on the location and extent of the lesion. Sigmoidoscopy may reveal narrowing of the lumen of the bowel with intact, but puckered, red and congested mucosa. The mucosa is only rarely invaded, and thus biopsy is usually not feasible. Of course, if the lesion is high up in the sigmoid colon, sigmoidoscopy may not reveal any abnormalities.

Digital rectal examinations may reveal a hard, tender mass which may feel extraluminal.

Pelvic examination in cases of generalized pelvic endometriosis may reveal nodules in the recto-vaginal septum, and enlarged cystic ovaries. Uterine fibromyomata which occur in 40-45% of cases with pelvic endometriosis, of course may be palpated.

The patient usually is in good general condition, with no evidence of weight loss. There may be anemia, due to blood loss from menorrhagia.

The roentgen characteristics of recto-sigmoid endometriosis, as shown by barium enema are variable, but for the most part can be classified into two groups, constricting and non-constricting. Implants on portions of the bowel which are freely suspended by a mesentery are less likely to have constricting lesions than are portions of the bowel which are partially extra-peritoneal and more firmly attached.

Two factors aid in the production of obstruction. First, the endometrial tumor may compromise the bowel lumen; and second, the associated inflammatory reaction produces active spasm and later constricting and fixing fibrosis. This late fibrosis and cicatricial contracture in some cases is the principal basis for roentgen findings.

In constricting lesions the following radiographic changes are noted in barium enema studies:

1. Annular narrowing of variable length, with or without associated filling defect by the endometrial tumor.
2. Area of involvement is sharply demarcated
3. Lesion is usually fixed and tender on palpation.
4. *Mucosal folds are intact through the lesions.*

In non-constricting endometriosis the findings are different:

1. Submucosal tumor is demonstrated with normal mucosa overlying and surrounding the lesion.
2. Localized spastic and irritable segment of bowel above and below the lesion.
3. Lesion is locally tender.
4. The variations in size of the tumor depending on the menstrual cycle is of great importance in establishing the diagnosis. This will be demonstrated in one of the cases presented.

Differential diagnosis of course includes the two most common lesions in the recto-sigmoid area, carcinoma and diverticulitis. Clinical features of endometriosis of recto-sigmoid area which aid in the differential from malignancy may be enumerated as:

1. Younger age group.
2. Associated sterility and menstrual disorder.
3. Absence of weight loss.
4. Exacerbation of symptoms with menstruation.
5. Lack of blood in stools.

Radiographically, carcinomata demonstrate distinct evidence of mucosal destruction, and are usually non-tender. Submucosal or sessile benign polypoid lesions could present findings similar to non-constricting endometriosis. However, such lesions would not vary in size with changes in menstrual cycle.

Diverticulitis occurs more commonly in an older age group than endometriosis. Associated signs and symptoms of infection are usually present such as fever and leucocytosis. Blood in the stools is often seen in diverticulitis.

Radiographically, in diverticulitis, diverticula are usually demonstrated. Lesions are long and tender with evidences of spasm above and below. Fixation of position and calibre is not marked unless perforation with formation of pericolic inflammatory mass has occurred.

## CASES

### CASE I

Forty-year-old, white married woman. Had one child aged 20, which means a lapse of twenty years between last pregnancy and admission date.

#### Past History:

No previous operation. In March, 1944, fifteen months prior to present admission, the patient had an attack of what she called "colitis," consisting of difficulty in moving bowels associated with the passing of mucus, but no blood. The patient had been a chronic user of mineral oil because of constipation.

#### Menses:

Menstrual periods normal up to six weeks before admission, at which time the patient's period was unusual in that it was very scanty. She consulted her physician, who gave her an injection which was followed by a much heavier flow a few days later. There were no other significant changes in the menstrual history.

#### Present Illness:

History of "bloating," and ribbon-shaped stools for a period of three weeks prior to admission.

On admission, the patient complained of anorexia, pain in the left lower abdomen, and mucus, but no blood in the stools.

#### Physical Findings:

Patient was a fairly well-developed, well-nourished woman, not acutely ill.

Positive physical findings were limited to the abdomen and rectum. Abdomen was moderately distended and quite tense. Dilated coils of small bowel and active peristalsis were visible.

#### Rectal Examination:

Rectum empty; hard, firm, irregular, non-tender, malignant-feeling mass, high in the rectum. The mass felt outside rather than within the rectum.

#### Laboratory Findings:

Not unusual except for a RBC of 3,700,000 and haemoglobin of 11 grams.

#### Course and Radiographic Findings:

On admission, films of the abdomen revealed typical findings of low colon obstruction with a markedly dilated caecum. Because of this a transverse colostomy was performed, with no attempt at abdominal exploration.

Nine days later a barium enema revealed a completely obstructing mid-sigmoid lesion. The examination was repeated and the obstruction was passed so that the lesion was adequately outlined. The lesion was about one inch in length. It was mainly annular and constricting with more defect from the left lateral bowel wall. Mucosal folds were well preserved and easily recognizable. Roentgen interpretation was that this represented a benign wall lesion with no mucosal involvement. Fixation of position and calibre suggested a post-inflammatory contracting cicatrix. (See Fig. 1.)



Fig. 1—Sigmoid area, case 1, showing the constricting character of the sigmoid lesion with intact mucosal folds.

#### Surgical Findings:

Hard sigmoid mass was found. No diagnosis was made. Tumor and adjacent bowel were removed, and primary anastomosis was carried out.

#### Pathology:

Gross specimen showed constricting area with deep ringlike indentation of the serosa. Wall within the constricted area was considerably thickened. Overlying mucosa was intact. Microscopic sections through the constricting lesion showed typical picture of endometriosis within hypertrophic muscle coat. (See Fig. 2 for photomicrograph of the lesion.)

#### CASE II

Thirty-year-old white female. Occupation, housewife and nurse. Admitted to Buffalo General Hospital, November, 1948.

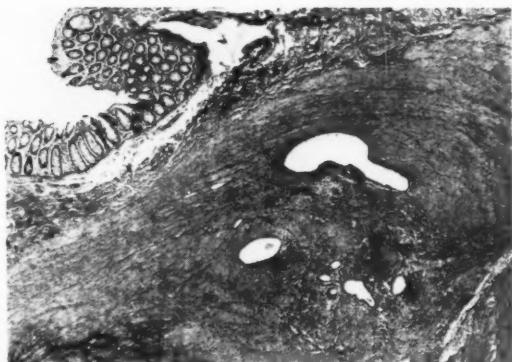


Fig. 2—Photomicrograph through resected lesion of case 1, demonstrating the submucosal location of the implant.

#### Marital:

Married in 1942, one child born in 1946. No subsequent deliveries. Hospital admission in November, 1948.

#### Past History:

History of constipation for the past ten years, necessitating the ingestion of mild cathartics, principally mineral oil, several times a week. For the past four years there had been an intermittent history of passing small amounts of bright red blood per rectum, only after passing a hard stool with difficulty. No anorexia or emesis. There was a history of dyspareunia which was not constant or severe.

#### Menses:

No history of dysmenorrhea. Menstrual periods were normal, except for an episode in November, 1942, which was characterized by metrorrhagia, lower left abdominal pain and emesis, followed in a few days by menorrhagia. These symptoms subsided, and the patient was entirely well in one month, except for intermittent attacks of pain in the left lower quadrant for the next three months.

#### Present Illness:

During the months of November and December, 1947, the patient gave a history of diarrhea, the stools containing mucus, but no blood. Sigmoidoscopy on two occasions during January, 1948, revealed no abnormalities up to a level of 25 cms. Films of the pelvis and sacroiliac joints revealed no abnormalities. In late January, 1948, a barium enema done elsewhere revealed a questionable abnormality in the sigmoid colon. Also, at this time pelvic examination revealed a thickened tube on the left, and a small mass was palpated in the recto-vaginal wall.

The patient felt perfectly well and had no further symptoms until her admission on November 1, 1948.



Fig. 3—View of sigmoid area in case 2, on first examination (Feb. 27/48). No tumor mass was demonstrable.



Fig. 4—Colon examination of case 2, on May 26/48 demonstrated clearly the submucosal polypoid tumor. Surrounding bowel wall was freely distensible.

The colon was examined by barium enema on several occasions between February and November, 1948.

Figures 3 to 6 show the changes in size of the sigmoid lesion. The lesion appeared submucosal with intact mucosa. It was locally tender. On first examination the sigmoid area was thought to be normal. Second examination revealed a distinct tumor. Because of this pronounced change in two months, the diagnosis of endometriosis was entertained. This was substantiated in a subsequent examination, when it was possible to predict with fair accuracy the size of the tumor, depending on the phase of the menstrual cycle.

On admission, physical findings were not remarkable, except for the pelvic examination, as reported previously. The patient was asymptomatic and laboratory findings were normal.

#### Surgical Findings:

In the free sigmoid loop there was a small, firm nodule with a scar on the serosal coat. Sigmoid loop was resected with end-to-end anastomosis.

#### Pathology:

Specimen of sigmoid colon contained a whitish nodule 1 x 1.5 cm which was attached to the serosa. Mucosa was intact. Microscopic sections revealed endometriosis involving the muscle coats and serosa. There was associated inflammatory fibrosis and edema.



Fig. 5

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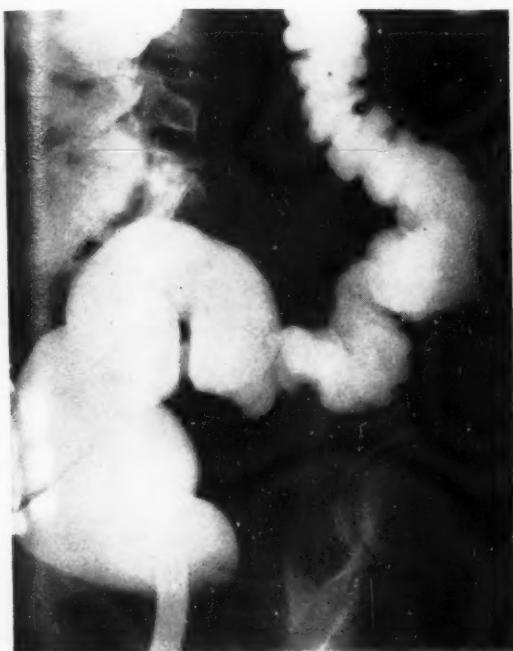


Fig. 5—Colon examination of case 2. on June 17/48. On comparison with preceding examination it was obvious that the tumor had regressed to a point where it was barely discernible.



Fig. 6—Colon examination of case 2. on July 6/48. Note reappearance of the submucosal tumor. Findings were almost identical with those of May 26/48.

#### CHART I LOCATION OF LESIONS (11)

	Allen 1921-1933	Haydon 1934-1940	Thierstein and Allen 1941-1944
Number of Cases	112	457	317
Ovaries	60	345	162
Uterus	53	313	142
Cul-de-Sac	—	191	80
Ligaments	—	69	89
Rectum and Bowel	—	22 (5%)	53 (17%)
Peritoneum	16	—	19
Tubes	—	16	12
Bladder	3	3	1
Appendix	1	1	2
Rectovaginal Septum	37	—	16

#### CHART 2 FERTILITY (Taken from histories with adequate marital data)

	Allen 1921-1933	Haydon 1934-1940	Thierstein and Allen 1940-1944
Number of Cases	88	262	185
Absolute Sterility	53 (60%)	168 (63%)	113 (61%)
Relative Sterility	18	—	—

Chart 1—Taken from article by Thierstein and Allen (11).

Chart 2—Taken from article by Thierstein and Allen (11).

#### CONCLUSION

When a woman in the reproductive period of life, gives a history of sterility and menstrual disorders, with symptoms of constipation, diarrhea (without rectal bleeding), rectal pain and low grade obstructive symptoms preceding, or coincident with the menstrual period, a diagnosis of endometriosis of the recto-sigmoid should be seriously considered.

#### CONCLUSION

Quand une femme, durant la période de sa vie sexuelle, est stérile et présente des troubles menstruels accompagnés de constipation, de diarrhée (sans saignement rectal), de douleur rectale et de symptômes de légère obstruction, avant ou durant la menstruation, on devrait songer sérieusement au diagnostic d'endométriose du côlon recto-sigmoidien.

# JOURNAL DE L'ASSOCIATION CANADIENNE DES RADIOLOGISTES

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## REFERENCES

1. Catell, R. B. Endometriosis of the Colon and Rectum with Intestinal Obstruction. *New Engl. J. Med.*, July 1, 1937. 217, 9.
2. Counsellor, V. S. Endometriosis. *Amer. J. Obst. and Gyn.*, November, 1938. 36, 877.
3. Jenkinson, E. L. and Brown, W. H. Endometriosis. *J. Amer. Med. Assoc.*, June 5, 1943. 122, 349-356.
4. Keene, F. E. and Kimbrough, R. A. Endometriosis. *J. Amer. Med. Assoc.*, October 18, 1930. 95, 1164.
5. Masson, J. C. Surgical Significance of Endometriosis. *Ann. Surg.*, November, 1935. 102, 819.
6. Mayo, C. W. and Miller, J. M. Endometriosis of the Sigmoid, Rectosigmoid and Rectum. *Surg. Gyn. and Obst.*, February, 1940. 70, 136.
7. Novak, E. and de Lima, Olives. A Correlative Study of Adenomyosis and Pelvic Endometriosis. *Amer. J. Obst. and Gyn.*, October, 1948. 56, 634-644.
8. Patton, C. L. and Patton, R. J. Endometriosis of the Sigmoid Colon as a Cause of Acute Intestinal Obstruction. *Amer. J. Surg.*, August 1941. 53, 265.
9. Schofield, J. R. and Bacon, H. E. Endometriosis of the Rectosigmoid and Sigmoid. *Ann. Surg.*, June, 1938. 107, 1022.
10. Sutler, M. R. Endometriosis of Intestinal Tract. *Surg.*, November, 1947. 22, 801-805.
11. Thierstein, S. T. and Allen, E. Comparative Analysis of Diagnosis and Treatment of Endometriosis, Including a Report of Fifty-Three Cases of Intestinal Endometriosis. *Amer. J. Obst. and Gyn.*, May, 1946. 51, 635-642.

## BOOKS RECEIVED

*Books received are acknowledged in this department, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.*

**The Preparation of Photographic Prints for Medical Publication.** By Stanley No. 5. McComb, F.B.P.A. Charles C. Thomas, 1950.

**Diathermy,** By Stafford L. Osborne, B.P.E., M.S., Ph.D., Professor and Chairman, Department of Physical Medicine, Northwestern University Medical School. Charles C. Thomas, 1950.

**The Clinical Use of Radio-active Isotopes,** By B.V.A. Low-Ber. Charles C. Thomas, 1950.

## PRESIDENT INJURED

Our best wishes go forward to our President, Dr. E. A. Petrie, who is still confined to bed following a car accident in January in which he sustained a fractured pelvis.

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## PRELIMINARY DEPTH DOSE AND ISODOSE MEASUREMENTS FOR COBALT-60 TELETHERAPY UNIT

W. R. DIXON, M.A., F. FISH, M.Sc., AND A. MORRISON, Ph.D.

NATIONAL RESEARCH COUNCIL, OTTAWA

### Introduction

Current interest in the use of cobalt-60 in teletherapy units has prompted this publication of preliminary measurements which we have made on the depth dose and isodose distribution in a masonite phantom. The measurements have been made with a trial source which gave an output of only about 0.7 roentgens per minute at a meter. Collimation of the beam has been achieved with lead diaphragms. Two methods of measurement have been used: small integrating ionization chambers, and radiographic film. The ionization chambers were made by the Baldwin Instrument Company and used in conjunction with the Baldwin-Farmer Radiological Electrometer Type RB. They have an outside diameter of 1.0 cm. and a length of 1.2 cm. Dupont 506 film has been used for the film determinations, the relative intensities being calculated from a characteristic curve of density vs. exposure obtained for film exposed inside the phantom.

A discrepancy in the relative intensity obtained by the two methods has been observed, and this has been attributed to the greater response of the film to the soft, multiply-scattered gamma radiation which builds up inside the phantom. The relative intensities obtained by the film method have been corrected to correspond to the ionization chamber results. The film method has the advantage of greater speed than the integrating chamber method, and it provides a convenient means of investigating regions of rapidly varying intensity. The measurement error in using film has been reduced to the same order as that for the chambers by using a standard development procedure. Control films have been used as a check.

### Results

Depth dose and isodose measurements have been made for a source-to-phantom distance of 125 cm. and for two field sizes: 6 x 6 cm. and 11 x 13 cm. The isodose curves for these two field sizes are shown in Figures 1 and 2. The curves have been obtained from ionization chamber readings along the axis, and at the sides of the beam; and from film exposed perpendicular to the beam at depths of 0.3, 0.64, 2.1, 3.3, 7.1, 16.5 and 23.5 cm. inside the phantom. Other points have been assigned dosage rates by interpolation.

The maximum dose occurs at a depth of from three to five millimeters inside the phantom. This depth corresponds to the average range of the Compton electrons which are generated inside the phantom by the incident gamma-radiation (of energies 1.16 and 1.32 Mev.)

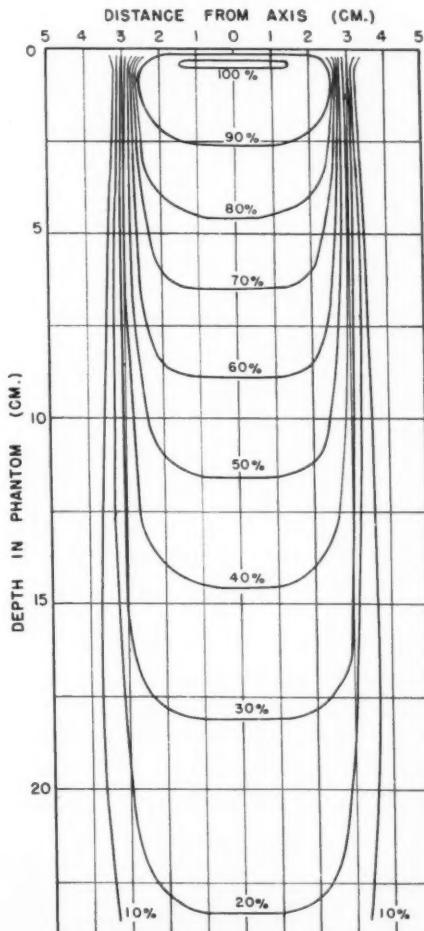


Fig. I

At a depth of 10 cm. the dose for the 11 x 13 cm. field is about 59%, and for the 6 x 6 cm. field it is about 56%. For the large field the 50% dose occurs at a depth of about 12.6 cm., while for the small field it occurs at a depth of about 11.6 cm.

Although the results presented here must be regarded as preliminary in nature, it is believed that evidence has been obtained which shows that the dosage distribution with a Co-60 source is quite suitable for efficient deep tumor treatments.

These measurements have been carried out for, and with the active co-operation of Eldorado Mining and Refining (1944) Limited, Ottawa, Ontario.

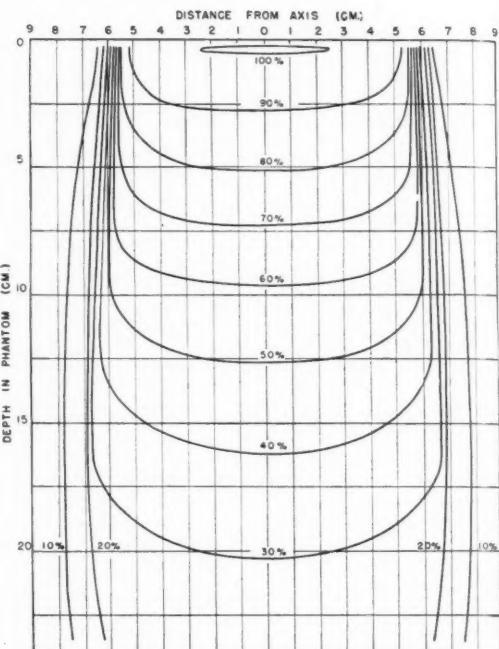


Fig. II

### ANNOUNCEMENT REGARDING TWO BULLETINS PREPARED BY THE INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

The International Commission on Radiological Protection at the Sixth International Congress of Radiology, London, July, 1950, revised the International Recommendations on Radiological Protection (ICRP/1), and in addition, prepared a supplement on "Maximum Permissible Amounts of Radioactive Isotopes" (ICRP/2). These two booklets will be sent to members of the Canadian Association of Radiologists in the near future by the Health Radiation Section, Industrial Health Division, Department of National Health and Welfare, 200 Kent Street, Ottawa.

Any radiologist not receiving these publications can secure copies by writing to the Health Radiation Section. A limited number of copies are also available for directors of isotope laboratories and others who might be desirous of having information contained in these booklets.

### ANONCE TOUCHANT DEUX BULLETINS PREPARES PAR LA COMMISSION INTERNATIONALE DE PROTECTION CONTRE LES RADIATIONS

La Commission Internationale de Protection contre les Radiations, lors du VIe Congrès International de Radiologie, tenu à Londres en juillet 1950, révisa les Recommandations déjà faites sur la Protection contre les Radiations et de plus, prépara un supplément sur "Les Quantités Maxima d'isotopes Radioactifs qui peuvent être permises".

Ces deux livrets seront envoyés aux membres de l'Association Canadienne des Radiologues, dans un avenir très rapproché, par la section des Radiations de la Division de la Santé Industrielle, du Département de la Santé et du Bien-Etre Nationaux, 200 rue Kent, Ottawa.

Tout radiologue qui ne recevra pas ces publications pourra se les procurer en écrivant à la section des Radiations, du Département de la Santé. Un nombre limité de copies sont aussi disponibles pour les directeurs des laboratoires d'isotopes et pour les autres qui seraient désireux d'avoir les informations contenues dans ces livrets.

SIXTH INTERNATIONAL CONGRESS OF RADIOLOGY,  
LONDON, ENGLAND.

July 22nd — 29th 1950.

A. C. SINGLETON, M.B., F.F.R.

TORONTO, ONTARIO

The Sixth International Congress of Radiology, held in London, England, July 22nd-29th, 1950, under the patronage of His Majesty King George VI, was a most outstanding success from every standpoint. This was the largest specialist medical meeting ever held. Fifty-five countries were represented, while thirty-two countries had official delegations. The final figures showed that 1,742 radiologists had registered and that the total of regular and associate members, including the radiologists' families, technical exhibitors and associate members, was 3,364. This was at least one thousand more than had been anticipated, in spite of which all arrangements were perfect, the meetings progressed regularly on time and it was without doubt the most perfectly organized meeting the writer has ever attended. The Congress was opened by the Right Honourable the Earl of Athlone, K.G., in his capacity of Chancellor of the University of London. He was accompanied by her Royal Highness the Princess Alice of Athlone. The opening ceremonies were held at the Central Hall, Westminster on Monday, July 24th at 11:00 a.m., where, following the ringing-in of the Congress by the Secretary, Dr. J. W. McLaren, the President, Dr. Ralston Paterson of Manchester, was installed by Dr. Benjamin H. Orndroff, Secretary of the Fifth International Congress of Radiology, in the absence of Dr. Arthur C. Christie, President of the Fifth International Congress held in Chicago in 1937. The opening included speeches of welcome by the President, Dr. Paterson, by the Right Honourable the Earl of Athlone, Dr. S. Cochrane Shanks, Vice-President of the Congress, Sir Henry Dale, President of the Royal Society of Medicine, Dr. Manuel Madrazo, President of the Fourth Inter-American Congress of Radiology, and Dr. Orndoff. The scientific work of the Congress was divided into four sections: Radio-Diagnosis, Radiotherapy, Radio-Biology and Radio-Physics. Each morning there were papers of general interest to the whole Congress, in which the advancements in Radiology in its various phases, since 1937, were presented by the various speakers, the topics here being of general interest, followed by symposia in the various sections. In the afternoons, eight sectional meetings were proceeding at one time under the four main headings mentioned. All phases of diagnosis,

therapy, and the basic science related to radiology, were very well covered. In all, four hundred and forty papers were presented, one hundred and eight in General Congress Scientific Meetings and Symposia, one hundred and twenty-four on Radio-Diagnosis, one hundred and eighteen on Radiotherapy, thirty-three on Radio-Biology, forty-nine on Radio-Physics and eight on Electrology.

The scientific exhibits were of excellent quality and were well attended. The commercial exhibits were exceptionally good, eighty manufacturers of radiological and associated equipment and accessories showing their products. These exhibits were held in the two halls of the Royal Horticultural Society in Westminster and were of outstanding interest to radiologists from all lands. On the Friday afternoon of the Congress, Her Majesty Queen Elizabeth paid a visit to the technical exhibits and spent two hours in the horticultural halls, under the guidance of Dr. Ralston Paterson, viewing the various apparatuses exhibited.

The scientific papers were of outstanding quality. Abstracts of the papers had been previously published in a booklet, which was of exceptional value in allowing one to choose the various papers which were of special interest to the individual visitor to the Congress. Over twenty-five Canadian radiologists attended the Congress and a large number of these presented papers.

A feature of the Congress was the showing of cinema films of radiological interest and many new and interesting films were shown. These certainly impressed one with the value of movie-film in the teaching of radiology.

The social side of the Congress was nothing short of magnificent. On Saturday evening prior to the Congress the President, Dr. Paterson, held a dinner for the Central Executive and certain others at the Atheneum Club, Pall Mall, while Mrs. Paterson entertained the ladies for dinner, and later the two parties joined. On Sunday, following registration, there was a reception by the Ladies' Committee at Caxton Hall, which was open to all members and

## JOURNAL DE L'ASSOCIATION CANADIENNE DES RADIOLOGISTES

associates. The ladies were received by Mrs. Ralston Paterson at Messrs. Derry and Toms' Roof Garden, Kensington, on Monday afternoon, and on Monday evening there was the dinner to the International Committee, at the Guild Hall by the invitation of British Radiology. This was attended by over six hundred people and was conducted with all the pomp and circumstance of that grand old institution. Here, after an unusually good meal, we were welcomed by the Lord Mayor, Dr. Ralston Paterson, Dr. Cochran Shanks and Dr. Ross Golden, and heard a brilliant and timely address by Vice-Admiral Lord Louis Mountbatten. The old Guild Hall with its musty banners, official Gold Mace and Sword and other gold ornaments and plate, with its bombed-out roof and temporary covering, and the gorgeously arrayed toastmaster, will always be remembered by those who were fortunate enough to be present at this dinner. On late Tuesday afternoon the Faculty of Radiologists of London conferred Honorary Fellowships on seven overseas radiologists. It was the very happy privilege of the writer to receive for Professor W. A. Jones of Kingston, in his absence, his parchment as Honorary Fellow, of whom there are only some fifteen in the world. On Tuesday also there was a reception by His Majesty's Government, in the person of the Minister of Health, Aneurin Bevan, in the Tate Galleries. This was followed by a cinema-show at the Odeon Theatre, Leicester Square, where the delegates were treated to a pre-preview of Arthur Rank's latest Production "Trio". On Wednesday evening there were various receptions by the Learned Societies and these included one to the Chairmen of National Delegations by the Royal College of Surgeons of England at 45 Lincoln's Inn Fields. On Thursday evening there was a marvellous garden fete at the Hurlingham Club in Roehampton, where we were treated to exhibitions of folk-dancing by groups from various parts of Great Britain, Welsh songs and exhibitions of diving, archery and other sporting events. A buffet supper was served and the entertainment ended with a display of very beautiful fire-works. On Friday evening there was the Congress Ball at the Savoy Hotel, with an extremely large turn-out, where Paris gowns, Indian saris and the evening gowns of fifty-two other nations mingled to make a very delightful sight and a very cosmopolitan atmosphere for the period of the evening.

The business of the Congress is conducted by an International Executive Committee and an International Committee. The International Executive Committee is composed of the President of the Congress as Chairman, three Immediate Past-Presidents of the Congress, the Chairmen of the Delegations of seven countries elected by ballot by all the National Delegations. The International Committee is composed of all National Delegations attending the Congress.

According to the Constitution, each delegation has one vote, which is expressed by its Chairman on consultation with the members of his delegation. Canada was one of the elected members of the Central Executive Committee of the Sixth International Congress.

The Executive Committee met on Saturday morning, July 22nd, at which time the general business programme of the Congress was reviewed. The International Committee met on Sunday, July 23rd. The International Executive Committee met again on Thursday, July 27th, and the International Committee on the same day.

All of the records of the previous International Congresses of Radiology were lost in the bombing of Hamburg in World War II and new sets of official Minute Books were presented to the International Congress by British radiologists.

The business arising out of the Congress is of varying types. The International Committee voted to join the Council for the co-ordination of the International Congress of Medical Sciences, which is organized under the auspices of the United Nations' Educational, Scientific and Cultural Organizations and the world Health Organization. The Council for the C.C.I.C.M.S., organized in Brussels in 1949 by representatives of forty-two international medical societies, publishes a quarterly bulletin from Unesco House, 19 Avenue Cléber, Paris, and this organization was of very considerable help in the establishment and backing of the Sixth International Congress of Radiology.

The Delegation from the United States introduced a resolution to eliminate the words "Phototherapy" and "Medical Electrology" from the "Purpose of The International Congress of Radiology". After much discussion in the International Committee, the word "Medical Electrology" was dropped from the preamble of the "Purpose of the Congress" but the word "Phototherapy" was retained. A resolution was introduced by the Mexican Delegation to change the interval between the International Congress from three to four years, in order to alternate every second year with the Inter-American Congress of Radiology. This resolution was quite strongly supported by all the delegations from the North American Continent but was finally lost by two votes in the General Committee Ballot. The American Delegation also introduced a resolution to consider stage-grouping in cases of cancer of the breast, for uniformity of statistics of results of treatment. This was finally changed from a committee on cancer of the breast to all cancer. The final recommendation approved by the Congress was the naming of an International Probational Committee for the Staging of Cancer and the Presentation of Results of

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## JOURNAL OF THE CANADIAN ASSOCIATION OF RADIOLOGISTS

Treatment. This Committee was abbreviated to I.C.R.C., International Committee of the Results of Cancer. Dr. J. Heyman, Stockholm, Sweden, was named Chairman of this Committee and the Committee met on July 29th, when it was decided to limit its activities for the moment to cancer in three locations, namely, "Cancer of the Uterus" under the Vice-Chairmanship of Dr. J. Heyman of Stockholm, "Cancer of the Larynx and Pharynx" under Dr. F. E. Laborgne of Montevideo, Uruguay, and "Cancer of the Breast" under Dr. U. V. Portmann of Cleveland, Ohio. The personnel of the Committee is as follows:

### ASIA

Dr. K. P. Mody, F.C.P.S.  
Tata Memorial Hospital, Bombay, India

### BELGIUM

Professeur J. H. F. Maisin  
Institut du Cancer de l'Université Louvain  
61 Voer des Capucin, Louvain

### CANADA

A. Hardesty Sellers  
Medical Statistician  
Department of Health for Ontario East Block  
Parliament Buildings, Toronto, Canada

### DENMARK

Dr. J. Clemmesen  
Cancerregistret  
Strandboulevarden 49, Copenhagen

### FRANCE

M. le Docteur P.-F. Denoix  
Institut National d'Hygiène  
45, Rue Cardinet, Paris

### GERMANY

Professor Dr. Med. H. Holthusen  
Krankenhaus St. Georg, Hamburg  
Goernestrasse 29

### GREAT BRITAIN

Dr. J. G. McWhirter, D.M.R.  
Thorndene, 32, Lockerbie Road, Dumfries

### ITALY

Professor F. Perussia  
Instituto del Cancro, Milano

### SOUTH AMERICA

(Uruguay)  
Dr. F. E. Laborgne  
Instituto de Radiologia, Montevideo

### SWEDEN

Professor J. Heyman (Chairman)  
Radiumhemmet, Stockholm 60

### SWITZERLAND

Professor H. R. Schinz  
Rontgeninstitut, Kantonspital, Zurich

### UNITED STATES OF AMERICA

Dr. U. V. Portmann, M.D.  
Cleveland Clinic  
Cleveland 6, Ohio

The Delegation from the United Kingdom introduced a resolution that the Constitution of the International Congress of Radiology be amended to give it a permanent structure as an "International Federation of Radiological Societies". "This suggestion was made for the following reasons:—

- (a) 'Such a secretariat would thereafter have complete lists of Radiological Societies, with lists of members, and the Congress organizers would not be left with the burden of contacting National Radiological Societies independently on each occasion.'
- (b) 'Such a permanent body would have an income from its affiliated societies. This income would greatly assist the running of International Congresses, the expenses of which are now becoming beyond what is reasonable to ask of any one country.'
- (c) 'Such a secretariat could encourage and maintain useful independent international activities in relation to radiology, particularly in regard to Units, Protection, Statistics and other Sub-Committees.'
- (d) 'This structure falls into line with the more usual arrangements for such international bodies.'

Possible draft protocols of such a new structure were submitted for discussion.

The results of the business meetings of the Congress may be best summed up by the Minutes of the Second Meeting of the International Committee as held at the Royal College of Physicians, London, S.W.1, on Thursday, July 27th, 1950, which we quote verbatim:—

1. "The Minutes of the Meeting of the International Committee held on Sunday, 23rd July, 1950, which had been circulated, were taken as read and confirmed."
2. "Report of the Sub-Committee on Revision of the Constitution."

The Chairman reported that the Executive Committee had approved a report of a Sub-Committee appointed to revise the Constitution and this was put before the International Committee for consideration. The Secretary-General then read the report (Copy previously circulated).

The Chairman of the Sub-Committee, Dr. Ross Golden, reported that the Sub-Committee had decided that it was impossible to accomplish the task of drawing up a detailed constitution for an

International Federation of Radiological Societies in the time available but that each Delegation should be asked to obtain the opinion of its own national radiological society on the proposal in principle, with a view to further discussion at the 7th Congress and with in mind that a society affiliation or membership fee of the order of 3% of the national society's membership income might be entailed. In the meantime, the Sub-Committee proposed an addition to the Rules and Regulations for the purposes of securing continuity in the organization of the International Congresses. He moved that the report be adopted and the motion was carried unanimously.

The addition reads as follows:—

**Rule 21a.**

- (I) For the purpose of securing continuity in the organization of International Congresses, the National Board of Management shall appoint an Executive Secretary who shall be paid from the funds of the Congress.
- (II) The Executive Secretary shall be appointed two years before the date fixed for the commencement of the next Congress and shall continue to be employed for one year thereafter.
- (III) During the year following the Congress, it shall be the duty of the Executive Secretary to prepare a detailed report, including a full financial report, on the working and organization of the Congress; to obtain and keep up-to-date lists of the memberships of all National Radiological Societies; to collect all such other information as may be of assistance to the National Board of Management in the organization of the forthcoming Congress; and, on the direction of the Secretary-General, to make recommendations on organization.

(IV) The National Board of Management shall decide whether it employs the same person as its Executive Secretary as was employed by the previous Congress, or whether it employs a different person. If the National Board of Management employs a different person, it shall provide for the fullest possible consultation and exchange of information between the outgoing and the incoming Executive Secretaries, including a period of overlap, not exceeding six months, in the services of the respective Executive Secretaries.

This, therefore, will be incorporated in the Rules and Regulations, pending further discussion at the next Congress.

3. *'International Protection Committee.'* The report of the International Protection Committee, to be published in due course, was taken in two parts:—

- a) scientific recommendations
- b) constitutional recommendations

The Chairman reported that the Executive Committee proposed the acceptance of the proposals as being the recommendations of acknowledged experts in this particular field. The recommendations were unanimously approved.

b) The International Committee approved the proposal that constitutional recommendations as follows be adopted:—

- (I) That the International Protection Committee shall consist of twelve members, selected without regard to nationality, and that this shall be the basis on which the Committee is finally constituted at the next Congress.
- (II) That the existing members of the Protection Committee continue to serve for three years.

4. *'International Units Committee.'* The report of the International Units Committee (to be published in due course) was similarly taken in two sections:—

- (a) scientific recommendations
- (b) constitutional recommendations

# JOURNAL OF THE CANADIAN ASSOCIATION OF RADIOLOGISTS

(a) The Chairman stated that the scientific recommendations were again submitted on the authority of the Executive Committee, on the grounds that a professional body had drawn them up and was unanimous as to these proposals. The International Committee approved their adoption.

(b) The Chairman stated that the constitutional recommendations of the Units Committee were similar to those made by the Protection Committee except in regard to the question of national representation. Owing to a lack of unanimity at the International Units Committee meeting, the Executive Committee recommended that a vote be taken on this question and the following proposal was put to the meeting:-

"That there be no nationality limitation in the selection of members of the International Units Committee, who shall be appointed in the light of their knowledge of their subject."

The International Committee then approved the adoption of constitutional regulations as follows:-

- i) That the International Units Committee shall consist of twelve members, selected without regard to nationality, and that this shall be the basis on which the Committee is finally constituted at the next Congress.
- ii) That the existing members of the Units Committee continue to serve for three years.

## MEETING OF EMPIRE RADIOLOGISTS WITH MEMBERS OF THE EXECUTIVE OF THE FACULTY OF RADIOLOGISTS

July 29th, 1950.

On the Saturday following the Congress there was held at the Faculty of Radiologists a meeting of Empire Radiologists with members of the Executive of the Faculty. There were in attendance, representing the Faculty Professor B. W. Windeyer, the President of the Faculty, Dr. C. G. Teall, Dr. S. Cochrane Shanks and Dr. J. W. McLaren, all of the Faculty of Radiologists; from Australia—Drs. John O'Sullivan, D. G. Maitland and T. L. Tyer; from Canada—Drs. A. C. Singleton, E. M. Crawford, O. Dufresne and Digby Wheeler; from New Zealand—Dr. R. E. Marshall; and from South Africa—Dr. S. F. Oosthuizen.

The International Committee approved the Executive Committee's recommendation that the constitution of the newly-established Statistical Committee and any subsequent committees be drawn up on similar lines to the Units and Protection Committees.

5. "Centre Antoine Béclère"—"Relations Internationales et Radiologie Medicale" (Béclère Foundation) has been established by Antoinette and Dr. Claude Béclère in honour of their father, the eminent French Radiologist, who died a martyr of radiation.

Dr. Belot, on behalf of the French Delegation, made a formal proposal that Professor Schinz should act as alternate for Professor Forssell on the Centre's Administrative Council should the latter be unable to attend. This was unanimously approved. The other councillor previously elected was Dr. Christie.

6. At the close of the meeting, Dr. Ross Golden and Dr. Belot expressed the appreciation of the meeting for the hospitality extended by their British colleagues."

The next International Congress of Radiology is to be held in Copenhagen, Denmark in 1953 under the Presidency of Professor P. Flemming Moller.

The Congress closing ceremonies were held in the Central Hall, Westminster, on Friday afternoon, where the Congress was rung out by the Secretary, Dr. J. W. McLaren, following the closing address by Dr. Paterson.

It was the unanimous feeling of all present that some form of Empire liaison was most highly desirable. After very frank discussion it became clear that there was a very general desire for some form of link with the Faculty of Radiologists on the part of all overseas societies and it was felt that the Journal offered possibly the most suitable means. The suggestion was made that one number per year might be taken for papers by Canadian or Australian radiologists or that an overseas number should be issued periodically. Some interesting statistics were produced as to numbers of members in Commonwealth radiological societies. The present number

# JOURNAL DE L'ASSOCIATION CANADIENNE DES RADIOLOGISTES

of Empire radiologists may be estimated from the following figures. The Faculty of Radiologists, London—566 members; the South African Society of Radiologists—100 members; The Canadian Association of Radiologists—240 members; the Australian College of Radiologists—between 130 and 150 members; and in New Zealand—30 radiologists.

While no definite affiliation or amalgamation was considered, we came away with the impression that the Faculty of Radiologists of London is very keen for much closer liaison with The Canadian Association of Radiologists and is prepared to consider any type of closer liaison which we feel would be of benefit to us both.

## LIVRES NOUVEAUX

**Radiation Therapy in the Management of Cancer of the Uterine Cervix**, par Siméon T. Cantril, Hôpital Suédois, Seattle, Washington. Charles C. Thomas, Editeur, Springfield, Illinois, 1950. Prix Canadien: \$6.50.

Le cancer du col est la plupart du temps compliqué d'infection, et on ne doit pas se fier autre mesure sur les signes cliniques d'envahissement péri-utérin. Sur 50 cas de paramètres cliniquement libres, l'envahissement néoplasique microscopique s'est montré réalisé une fois sur trois. Sur 36 cas de paramètres cliniquement envahis, l'absence de cancer a été histologiquement prouvée une fois sur quatre. La vérification histologique du staging anatomo-clinique a fourni, d'après Pankow, la précision suivante: sur 8 cas cotés au stade I, deux cas étaient en réalité au stade II et un, au stade III. Sur 32 cas cotés au stade II, deux cas étaient en réalité au stade I, et 14 cas, au stade III. Sur 25 cas cotés au stade III, 6 cas n'étaient encore en réalité qu'au stade II.

Le staging n'a de valeur que pour l'étude de statistiques portant un nombre considérable de cas. Il faut savoir que les diverses modalités d'un même stade de la classification de Genève comportent des pronostics très différents.

Tout le monde admet que dans la radiothérapie des cancers du col utérin, la phase intracavitaire est de beaucoup la plus importante. Elle peut s'effectuer de quatre façons.

1) **Technique de Stockholm.** Mise au point par Forsell et Heyman. Elle comporte une dose de 3000 mgr heures dans l'utérus, et de 3600 mgr heures dans le vagin, appliquée en deux séances de 24 heures. On ménage un intervalle de trois semaines entre les deux séances. La charge pour l'utérus est de 50 à 60 milligrammes, en autant de foyers qu'il en faut pour occuper la cavité. La charge pour le vagin est de 80 à 100 milligrammes, en autant de foyers qu'il en faut pour pratiquer une irradiation homogène. La filtration utilisée est de l'ordre de 3 mm. de plomb. Les applicateurs vaginaux visent à épouser autant que possible la surface épithéliomateuse. L'adjonction de compresses est pratiquée de manière à épargner le rectum et la vessie et à tenir les applicateurs en bonne position.

2) **La technique de Paris** comporte 1o) une dose de 30 mcd dans le vagin avec une charge de 30 à 40 milligrammes, répartie en deux ou trois foyers, et 2o) une dose de 12 à 32 mcd. dans l'utérus, suivant la longueur de la cavité et le nombre de foyers utilisés. Le radium utérin, filtré par 1 mm. de Pt est disposé dans une sonde de caoutchouc. Le radium vaginal, filtré par 1.5 mm. de Pt., est disposé dans des étuis de liège de 8 mm. de paroi. Deux étuis reliés par une tige métallique flexible forment le colpostat de Regaud.

3) **La technique de Manchester** est une application à la gynécologie, par Tod et Meredith, de la méthode dosimétrique de Paterson et Parker. La phase intra-utérine se pratique comme ailleurs. L'application intra-

vaginale se fait au moyen de boules de caoutchouc dureci de 3, 2.5 ou 2 cm. de diamètre. Les boules ont une forme légèrement ovoïde, calquée sur les courbes d'isodoses d'un tube de radium de 15 mm. de longueur active, qui serait placé dans leur grand axe. La distance entre les deux boules est maintenue par des écarteurs en forme de diaboles ou en forme de rondelles. Leur paroi est d'un millimètre de platine. Chaque boule peut contenir un ou plusieurs tubes de 13.3 ou de 6.6 milligrammes. La rotation des boules à l'intérieur du vagin n'affecte pas l'uniformité de répartition de l'énergie dans une proportion supérieure à 10%. L'application intra-utérine se fait concurremment à l'application vaginale. Elle dure deux jours. Si le malade ne reçoit pas de traitement complémentaire par les rayons X, une seconde application est faite au bout de cinq jours. Dans le cas d'association à la roentgentherapie, la deuxième application de radium est pratiquée après le traitement de rayons X.

La dose dans la technique de Tod et Meredith est exprimée en gamma roentgens. Les calculs sont faits pour deux points A et B, qui servent de points de référence. Le point A est situé à deux centimètres au-dessus du cul-de-sac vaginal latéral et à deux centimètres en dehors du canal cervical. Le point B est situé sur la paroi pelvienne, sur la ligne transversale qui passe par le point A.

La dose idéale au point A, pour malades traitées uniquement par curiethérapie, serait d'après Mlle Tod, de 7500 r en 7 jours ou de 8500 r en 10 jours. Pour les malades traitées par roentgentherapie et curiethérapie associées, la dose idéale au même point, serait de 10 500 r en 6 semaines.

Dans les techniques de Stockholm et de Paris, la dose aux points A et B serait inférieure à celle fournie par la technique de Manchester.

La technique dosimétrique, dans des mains inexpérimentées, peut exposer à des désastres, en raison de la croissance ou de la décroissance abrupte de l'énergie suivant des différences de distance, qui sont toujours, ici, relativement très grandes.

4) **La roentgentherapie pervaginale** a été utilisée en Amérique, par Merritt, Regato, Cantril et d'autres. On l'a employée seule ou associée soit à la roentgentherapie transcutanée, soit à la curiethérapie intra-cavitaire. On se sert d'un voltage de 140 à 220 Kv, d'une filtration de 0.5 à 1 mm. de cuivre, et d'une distance de 12 à 30 cm. Regato donne 3000 à 4000 r en 10 ou 12 jours.

C'est là un rapide aperçu du contenu de quelques chapitres du livre de Cantril. Livre remarquable par sa clarté, par le nombre des problèmes qu'il aborde et qu'il discute, et par la sincérité scientifique dont il est empreint.

G. PINSONNEAULT, M. D.

## EDITORIAL

### GOSTA FORSELL

1876 - 1950



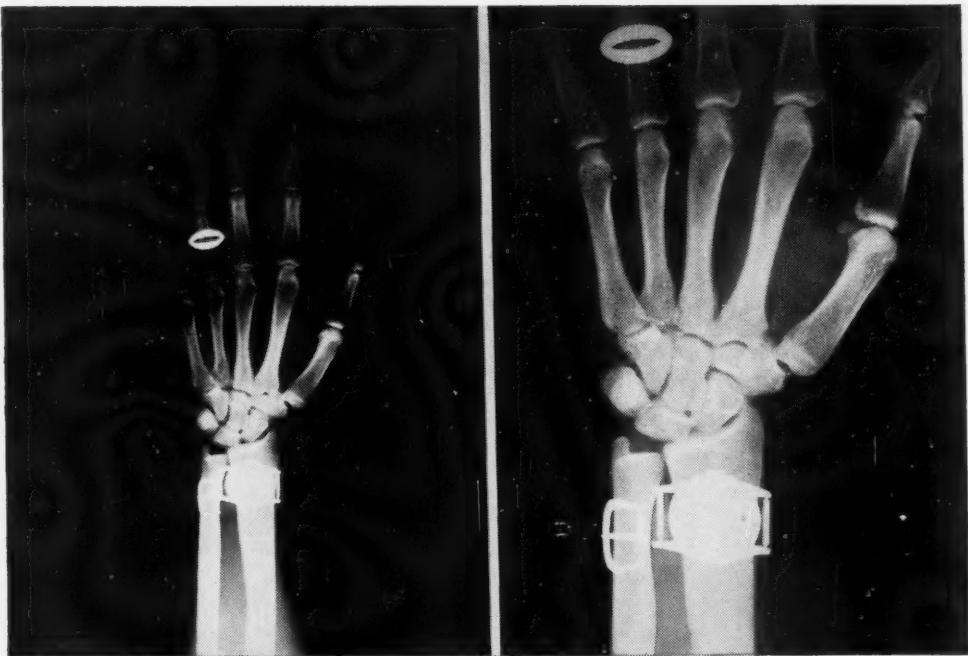
On November 13, 1950, the great Swedish radiologist Gosta Forsell died at the age of 74. His name is known all over the world not only as the most outstanding radiologist of his country, but as a man whose life-work has profoundly influenced the development of diagnostic and therapeutic radiology. His death will be felt by radiologists of all countries who have profited by the work and teachings of this rare man who was, at the same time, a great scientist, an eminent clinician, an outstanding organizer, and a great human being.

Forsell's early medical career coincided with Roentgen's great discovery. In 1899 he was assistant to the first Swedish roentgenologist, Stenbeck. In 1902 he became assistant in the Department of Radiology of the University Hospital in Uppsala. From 1906 until his retirement from active duties in 1941, he was Director of the Roentgen Institute of the Serafimer Hospital in Stockholm. In 1910 he founded a small hospital which he called "Radiumhemmet" and where, at first with very modest means, he devoted special attention to radiotherapy, particularly of cancer. It was here that Forsell's outstanding abilities as clinician, radiologist, organizer, and builder soon became apparent, not only within his own country but throughout the world. The central organization of radiological treatment of cancer, inaugurated in the "Radiumhemmet", the permanent control and follow-up surveys of all patients treated there, for which Forsell soon succeeded in securing the active collaboration of all medical practitioners of his country, set a pattern which made Stockholm the Mecca of radiotherapists of the world. It was greatly enlarged in 1916 in the number of beds, equipment, research laboratories, and with additional research departments for radiopathology and radiophysics added in 1927, Forsell handed over its direction to his famous pupil Elis Berven, while he assumed the chairmanship of the Anti-Cancer Association. Since 1937 the "Radiumhemmet", together with the Institute of Radiophysics and the Institute of Radiopathology have been united under the name of "King Gustave V Jubilee Clinic" as part of the Karolinska Sjukhuset with Berven as Professor of Radiotherapy.

Although a great part of his life-work was devoted to the battle against cancer, and although about two-thirds of his publications were devoted to roentgen therapy, Forsell's influence on and contribution to roentgen diagnosis have not been less important. In approximately one-third of his scientific publications and in thirty-four volumes and seventy-seven supplementary volumes of the "Acta Radiologica", founded by him in 1921, Forsell and many of his outstanding pupils have published numerous contributions to diagnostic radiology, which have become standard works of the radiological literature. Forsell's own publications on roentgen diagnosis have opened a new field of scientific research concerning the general anatomy and physiology of the gastro-intestinal tract and of the morphology of the gastric mucosa. His monograph on "The Relation of Radiological Appearances of the Human Stomach to its Anatomical Structures", published as early as 1913, has not lost any of its value today. His observations of the autoplastic muscular movement of the gastro-intestinal canal, published in 1928, have greatly enriched our conception regarding the functional and pathological behaviour of the gastro-intestinal mucosa. It was this work which stimulated his great pupil, Ake Akerlund, and Hans Heinrich Berg in Germany, to enlarge upon Forsell's studies and to develop a "relief diagnosis" of the gastro-intestinal canal, founded on intimate correlation of radiological appearances and the anatomical and pathological conditions producing them.

The 2nd International Congress of Radiology in Stockholm in 1928 will remain unforgettable by any of the numerous radiologists and physicists of all countries who were overwhelmed by its magnificent organization. This Congress has set a pattern for radiological meetings in many countries.

Although Forsell has gone, his work remains. He forced the growth of Radiology in Sweden. He was one of those who helped to build Radiology in the world of Science. Two generations of radiologists and clinicians owe him more than they can measure. He was a great man. We salute him as he leaves us, but as we turn back to the work of the day we can still feel that he is among us, for in Radiology he will always be one of our guides and one of our inspirations.



## DAVID and GOLIATH

Although by virtue of size alone the radiographs illustrated appear to be those of an average person as well as a giant—they are of one and the same person.

This is not a photographic feat, but two exposures in which the new Rotalix Rotating Anode X-Ray Tube with 0.3 mm. focus was utilized. In the normal size radiograph the ultra-fine source provided by the fractional-focus was utilized to produce direct radiographs 2, 3 or even 4 times larger than normal.

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